AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1.   (Currently amended) A method for predicting the soybean cyst nematode resistance of a soybean sample comprising:

(a)   obtaining a spectroscopic scan of a soybean sample to provide an assay spectra over a predetermined frequency range;

(b)   comparing the assay spectra with a predictive model based upon spectra obtained over the predetermined frequency range from individual base samples selected from at least the group consisting of known soybean cyst nematode resistant genotypes, known soybean cyst nematode susceptible genotypes, and known genotypes with varying levels of resistance to soybean cyst nematode,

~~wherein the step (b) of comparing includes~~ said comparison between the assay spectra and the predictive model being conducted by using a discriminant analysis based upon the predictive model, wherein the discriminant analysis includes a regression analysis by comparing peak intensity within the predetermined frequency range between the assay spectra and the corresponding spectra; and

(c)   predicting the soybean cyst nematode resistance of the soybean sample based upon the comparison results between the assay spectra and the predictive model.

2.   (Original) The method of Claim 1 wherein said soybean sample is selected from the group consisting of leaf, stem, and seed.

3.   (Original) The method of Claim 2 wherein said soybean sample is seed.

4.   (Currently amended) The method of Claim 1 further comprising a ~~wherein the comparison results in~~ step wherein ~~(b) are based upon a visual comparison between~~ the assay spectra and the predictive model are visually compared.

5-7 (Cancelled)

8.   (Previously presented) The method of Claim 1 wherein the predictive model used in the comparing step (b) comprises an intelligent algorithm.

9.   (Original) The method of Claim 8 wherein the natural intelligent algorithm is selected from the group consisting of an adaptive filter, a neural network, and combinations thereof.

10.   (Original) The method of Claim 1 wherein the predetermined frequency range comprises the near-infrared.

11.   (Original) The method of Claim 1 wherein the predetermined frequency range is the near-infrared.

12.   (Previously Presented) A method for predicting the soybean cyst nematode resistance of a soybean sample comprising:

(a)   measuring near-infrared data of a soybean tissue sample using a near infrared (NIR) spectrometer to scan over the near infrared range of radiation,

(b)   transforming the near-infrared data measured in (a) by mathematical transformation to obtain mathematically transformed data,

(c)   inputting the transformed data into a predictive model for the soybean cyst nematode resistance of said sample,

wherein the predictive model includes

a discriminant analysis based upon a regression analysis for comparing peak intensity within the NIR range between the assay spectra and the corresponding spectra., and

(d)   obtaining a prediction of the soybean cyst nematode resistance of said sample.

13.   (Previously presented) The method of Claim 12 wherein said sample is selected from the group consisting of soybean leaf, stem, and seed.

14.   (Withdrawn) An electronically programmable apparatus for predicting the soybean cyst nematode resistance of soybean genotypes comprising:

    (a)   a spectrophotometer configured to measure spectrographic data from a soybean tissue sample;

    (b)   a predictive model for the soybean cyst nematode resistance of the sample;

    (c)   program instructions for processing the spectrographic data by mathematical transformation to obtain mathematically transformed data acceptable for use in the predictive model; and

    (d)   means for using the mathematically transformed data to obtain a prediction of the soybean cyst nematode resistance of the sample.

15.   (Withdrawn) The electronically programmable apparatus of Claim 14 wherein the spectrographic data is near-infrared data.

16.   (Withdrawn) The electronically programmable apparatus of Claim 15 wherein said near-infrared data is absorption data.

17.   (Withdrawn) The electronically programmable apparatus of Claim 14 wherein the near-infrared data is reflectance data.

18.   (Withdrawn) The electronically programmable apparatus of Claim 14 wherein the predictive model is a discriminant analysis.

19.   (Withdrawn) The electronically programmable apparatus of Claim 14 wherein the predictive model is a natural intelligent algorithm.

20.   (Previously presented) A machine readable code for use in predicting the soybean cyst nematode resistance of a soybean sample comprising machine readable instructions operable for:

    (a)   measuring near-infrared data of a sample selected from soybean seed, soybean plant tissue, or mixtures thereof using a near infrared (NIR) spectrometer to scan over the near infrared range of radiation;

    (b)   transforming the near-infrared data measured in (a) by mathematical transformation to obtain mathematically transformed data;

(c)   inputting the transformed data into a predictive model for the soybean cyst nematode resistance of said sample,

wherein the predictive model includes

a discriminant analysis based upon a regression analysis for comparing peak intensity within the NIR range between the assay spectra and the corresponding spectra; and

(d)   obtaining a prediction of the soybean cyst nematode resistance of said sample.

21.   (Withdrawn) Soybean seed generated from a breeding program using the method of Claim 1.

22.   (Withdrawn) Soybean seed generated from a breeding program using the method of Claim 12.

23.   (Withdrawn) A method for comparing genotypes of biological samples comprising:

(a)   obtaining a spectroscopic scan of a tissue sample to provide an assay spectra over a predetermined frequency range; and

(b)   comparing the assay spectra with a predictive model based upon corresponding spectra obtained over the predetermined frequency range from at least one control sample to provide comparison results.

24.   (Withdrawn) The method of Claim 23 wherein said sample is selected from the group consisting of plant, animal, bacterial, fungal, and viral samples.

25.   (Withdrawn) The method of Claim 24 wherein said sample is plant.

26.   (Withdrawn) The method of Claim 24 wherein said sample is animal.

27.   (Withdrawn) The method of Claim 24 wherein said sample is bacterial.

28.   (Withdrawn) The method of Claim 24 wherein said sample is fungal.

29. (Withdrawn) The method of Claim 24 wherein said sample is viral.

30. (Withdrawn) The method of Claim 25 wherein said plant is soybean.

31. (Withdrawn) The method of Claim 23 wherein said spectroscopic scan is an infrared spectroscopic scan.

32. (Withdrawn) The method of Claim 23 wherein said genotype is soybean cyst nematode resistance.

33. (Withdrawn) A plant breeding program based on results obtained from the method of Claim 23.

34. (Withdrawn) Seeds generated from the method of Claim 29.